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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,575	11/11/2005	Heinz Peter Rink	PAT-00389	4278

26922 7590 07/03/2008

BASF CORPORATION  
Patent Department  
1609 BIDDLE AVENUE  
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WYANDOTTE, MI 48192

EXAMINER
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MCCLENDON, SANZA L

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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07/03/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/532,575	<b>Applicant(s)</b> RINK ET AL.	
	<b>Examiner</b> Sanza L. McClendon	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10, 11 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 11 and 13-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/25/05</u> .   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**  
***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1-8, 10-11, and 13-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding independent claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). It is also unclear if these are just examples of functional groups wherein others are possible, such as hydroxyl groups or vinylic (i.e., allylic or alkenes). Clarification is requested.

***Claim Rejections - 35 USC § 103***

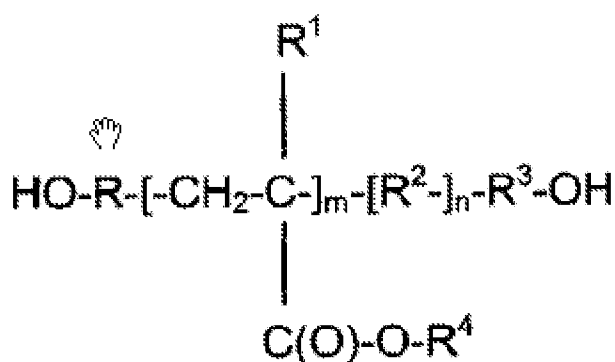
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-8, 10-11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rink et al (DE 10305076).

Rink et al sets forth introducing radiation curable groups into an acrylic compounds having free hydroxyl groups via an estrification reaction with carboxylic acids or acid esters comprising radiation curable functional groups in the presence of enzymes, such as hydroylases. These compounds were found to having low yellowing, good hardness, scratch and chemical resistance, good gloss and adhesion properties when added as a component in a clear lacquer—see [0084]. Rink et al sets forth esterifying these compounds via this method is a gentler and safer method over the prior art methods comprising introducing isocyanate functionality into a polymer and then reacting said isocyanate with a hydroxy functional unsaturated compound to introduce radiation curable groups into polymer. Said inventive method eliminates the use of isocyanates, which causes health risk, as well as, unwanted properties such as yellowing. The use of enzymes allows for estrification of said hydroxyl groups in a hydroxy-containing acrylate s instead of cracking/splitting said hydroxyl groups as found in conventional acid esterification methods—see [0002-0003].

Rink et al sets forth methods of esterifying  $\alpha,\omega$ - poly (meth) acrylate diols having a



general formula of  $\text{HO}-R-[-CH_2-C-]_m-[R^2-]_n-R^3-OH$ , wherein R1 is a alkyl, cycloalkyl, aryl group or a linking group, R2 is a moiety of a acrylate or methacrylate compound, R3 is a alkyl, cycloalkyl, aryl or a linking moiety and/or a remainder part of R2, R is a alkyl, aryl, cycloalkyl, a linking group or a remainder moieties from the monomers polymerized to obtain the general formula, and R4 is alkyl group having from 1-10 carbon atoms—see [0022-0028]. Said esterification is obtained via an enzyme such as hydrolase (i.e., lipase or esterase or protease--see [0045-0049] with a carboxylic acid that has ethylenic

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unsaturation, such that the compounds of the formula once esterified have unsaturated groups polymerizable via exposure to radiation and/or heat. These compounds are then added to a radiation curable compositions that can be solvent borne, aqueous, dispersions, emulsions, suspensions, powdered, solvent-free, slurry compositions are can be used alone with initiators as coating compositions—see [0066]. Per examples 2a and 2b, Rink et al adds the esterified compounds as described above to compositions comprising a poly (meth) acrylate polymer having free hydroxyl groups, photoinitiators, and other auxiliary component--see [0090-0095]. The poly (meth) acrylate polymer in the composition is obtained via reaction of styrene, ethylhexyl acrylate, hydroxyethyl methacrylate, hydroxybutyl acrylate and acrylic acid.

While Rink et al does not specifically/expressly teach esterifying poly (meth) acrylates having hydroxyl functional groups that are obtained via reaction of compounds such as instantly claimed aa), ab), ac) and/or ad), the examiner deems the instantly claimed invention is rendered obvious or at least obvious as a natural progression of the art "to try" from the teachings found in the reference. The examiner deems that Rink et al provides a method of introducing radiation curable groups into a hydroxy functional polymer without the addition of isocyanates, which causes known unwanted properties such as yellowing over time and reduces unwanted health risk from such components, and that does not damage the polymer, i.e. not cracking/splitting of the ester groups in the polymer thus no molecular weight changes due to cracking/splitting. In addition, Rink et al also teaches adding these compounds to polymers, such as poly (meth) acrylates, that have free hydroxyl groups. The examiner deems it would be obvious or at least obvious to try to esterify the hydroxyl-functional poly (meth) acrylate polymer, such as found in the examples, to introduce radiation curable groups into said polymer via the use of an enzyme. The motivation would have been a reasonable expectation of providing a UV/thermally crosslinkable polymer that is capable of crosslinking without the addition of crosslinking agents (tailored crosslinking density), as well as, overcoming the disadvantages of the prior art polymers made by conventional methods, such as found in the reference, i.e., having no or low yellowing properties. Additional motivation would have been a reasonable expectation of providing a polymer that once polymerized via exposure to radiation and/or heat provides the advantages as outlined in the reference, i.e., good hardness, scratch and chemical resistance,

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good gloss and adhesion properties, without having to add other components that provide the same properties (i.e., reducing the components thus the cost of making said coating compositions).

6. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

*Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sanza L McClendon/

Primary Examiner

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SMc